

2.2.2 Water Quality and Storm Water Runoff

2.2.2.1 Regulatory Setting

Section 401 of the Clean Water Act requires water quality certification from the State Water Resource Control Board (SWRCB) or a Regional Water Quality Control Board (RWQCB) when the project requires a Federal permit. Typically this means a Clean Water Act Section 404 permit to discharge dredge or fill into a water of the United States, or a permit from the Coast Guard to construct a bridge or causeway over a navigable water of the United States under the Rivers and Harbors Act.

Along with Clean Water Act Section 401, Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) for the discharge of any pollutant into waters of the United States. The federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and the nine RWQCBs. To ensure compliance with Section 402, the SWRCB has developed and issued the Department an NPDES Statewide Storm Water Permit to regulate storm water and non-storm water discharges from Department' right-of-way, properties and facilities. This same permit also allows storm water and non-storm water discharges into waters of the State pursuant to the Porter-Cologne Water Quality Act.

Storm water discharges from the Department's construction activities disturbing one acre or more of soil are permitted under the Department's Statewide Storm Water NPDES permit. These discharges must also comply with the substantive provisions of the SWRCB's Statewide General Construction Permit. Non-Departmental construction projects (encroachments) are permitted and regulated by the SWRCB's Statewide General Construction Permit. All construction projects exceeding one acre or more of disturbed soil require a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. The SWPPP, which identifies construction activities that may cause discharges of pollutants or waste into waters of the United States or waters of the State, as well as measures to control these pollutants, is prepared by the construction contractor and is subject to Department review and approval.

Finally, the SWRCB and the RWQCBs have jurisdiction to enforce the Porter-Cologne Act to protect groundwater quality. Groundwater is not regulated by Federal law, but is regulated under the state's Porter-Cologne Act. Some projects may involve placement or replacement of on-site treatment systems (OWTS) such as leach fields or septic systems or propose implementation of infiltration or detention

treatment systems which may pose a threat to groundwater quality. Currently the OWTS program is without SWRCB regulation but you should be aware of threats to groundwater quality on the project site and evaluate and address accordingly in the environmental document. Design standards for installation and operation of infiltration and detention treatment systems should protect groundwater quality and those protections should also be addressed in the environmental document.

2.2.2.2 Affected Environment

A Water Quality Technical Study was prepared by the Department in November 2006 and was updated in March 2008 to address an additional alternative. A summary of the updated report is provided below. Detailed information regarding the water quality and storm water runoff is provided in the *Water Resources and Water Quality Technical Study* (March 2008).

Surface Water

The project area is located in the San Juan Creek Watershed. Runoff from the project site currently discharges into San Juan Creek via natural surface drainage and underground storm drain systems. San Juan Creek has a drainage area of approximately 176 square miles. The proposed project is located within Reach 5 of San Juan Creek. The surrounding area within the project limits consists primarily of developed land with extensive areas of impervious surface and has few remaining natural drainage features.

San Juan Creek has been documented as having poor surface water quality. The SWRCB designated the lower portion of San Juan Creek, including the creek mouth, as impaired for bacteriological indicators under Section 303(d) of the CWA.

Surface water quality in the San Juan Creek watershed is primarily influenced by nonpoint sources of nonstorm water runoff from urban and residential developments. Contaminants affecting the watershed include various vehicle-related pollutants such as oil, grease, heavy metals, and other petroleum products from roadways. Other pollutants that also affect the watershed include illicit dumping, pesticides, herbicides, and fertilizers from parks, residential homes, and golf courses. Contaminated runoff from irrigated agricultural lands in the watershed also contributes to the poor surface water quality in San Juan Creek. Currently, wastewater treatment facilities do not contribute pollutants to the watershed because all effluents from these facilities are discharged directly into the Pacific Ocean.

Groundwater

Groundwater in the San Juan Creek Watershed exists unconfined in a generally narrow, shallow, alluvium-filled valley in the San Juan Canyon area and its tributaries. The depths of the alluvial fill range from 200 ft at the coast to 0 ft at the end of the main canyon tributaries in the Santa Ana Mountains.¹ The groundwater level at San Juan Creek is approximately 50 ft below the surface at an elevation of 111 ft above sea level.

The Cristianitos Fault is the main physical feature influencing the movement of groundwater within the watershed. Current total groundwater storage capacity is estimated at 63,220 acre-feet (af) (21,620 af for the Upper San Juan Basin and 41,600 af for the Lower San Juan Basin).

Recharge for the groundwater basins consists of subsurface inflow from the tributary alluvial riverbed areas, streambed percolation from San Juan and Trabuco Creeks; rainfall infiltration and percolation, and percolation from landscape and agricultural irrigation. The total basin inflow is estimated at 4,284 af per year. Outflow from the basins consists of well extractions, extractions from deep-rooted plants, and subterranean outflow at the river mouth. The total basin outflow of groundwater is estimated at 4,819 af per year.

Currently, only two water districts are actively pumping groundwater for supplemental domestic use. The Capistrano Valley Water District receives approximately 30 percent of its total water supply via groundwater, and the Trabuco Creek Water District receives approximately 15 percent of its total water supply via groundwater.

Groundwater in the San Juan Basin contains high levels of dissolved solids and salt. The problem is primarily related to the high salt content in the water-bearing sediments and not pollution from human sources. Therefore, local water agencies tend to favor the use of imported water for domestic needs, with pumped groundwater as the supplemental source.

¹ *SR-74 Lower Ortega Widening Project Water Resources and Water Quality Technical Study* (March 2008).

2.2.2.3 Environmental Consequences

Temporary Impacts

No Build Alternative

The No Build Alternative does not contain construction elements; therefore, there will be no temporary water quality impacts.

Build Alternative 1

During construction, Build Alternative 1 would require approximately 4.54 ac of soil disturbance. Erosion and siltation in the drainage area may temporarily increase during project construction. The amount of sediments entering the San Juan Creek Watershed in the project area is expected to be minimal with the implementation of the SWPPP and temporary construction site Best Management Practices (BMPs) (Department Storm Water Quality Handbooks, Construction Site Best Management Practices Manual, March 2003).

Dewatering discharge could adversely impact surface water quality if the effluent is rich in sediment or contaminated with chemicals. Dewatering is a process of pumping out (dewatering) groundwater, if encountered, to form and construct the foundations for the construction of footings/foundations of noise barriers and retaining walls. Extracted groundwater may contain pollutants that may be a result of the decomposition of organic materials (e.g., hydrogen sulfide); leaking underground storage tanks; sewage; or the potential presence of nutrients (phosphorous and nitrogen compounds). Geotechnical soil borings will determine the elevation of groundwater with respect to the elevations of the footings and/or foundations of the noise barriers and retaining walls. Based on information in the Revised Preliminary Geotechnical Report (August 2006), dewatering is unlikely. However, should dewatering be required for the project, it would only be temporary from construction activities. If construction-related dewatering is required, the project would be subject to the *General Waste Discharge Requirements for Groundwater Extraction Waste Discharges from Construction, Remediation, and Permanent Groundwater Extraction Projects to Surface Waters within the San Diego Region except for San Diego Bay* (Order No. 2001-96, NPDES No. CAG919002) or any subsequent permit/order at time of construction.

Potential temporary surface and groundwater water quality impacts associated with construction of Build Alternative 1 would be avoided or minimized through compliance with the existing Department NPDES permit and groundwater dewatering permit, as identified in the measures below, and are considered less than significant.

Build Alternative 2

As described in Chapter 1, Build Alternative 2 has the same improvements as in Build Alternative 1, with the addition of replacing the north sidewalk at the edge of the new curb. Even with this addition, temporary impacts to water quality beyond those outlined above for Build Alternative 1 are not expected since the impervious surface will be the same. Implementation of a SWPPP for the project and the application of construction site BMPs will be included as part of the proposed project. The construction site BMPs will address temporary erosion and siltation as well as management of construction related wastes associated with the construction of the sidewalk proposed for Build Alternative 2.

Potential temporary surface and groundwater water quality impacts associated with construction of Build Alternative 2 would be avoided or minimized through compliance with the Department NPDES Permit and groundwater dewatering permit identified as the *General Waste Discharge Requirements for Groundwater Extraction Waste Discharges from Construction, Remediation, and Permanent Groundwater Extraction Projects to Surface Waters within the San Diego Region except for San Diego Bay* (Order No. 2001-96, NPDES No. CAG919002) or any subsequent permit/order at time of construction.

Permanent Impacts

No Build Alternative

The No Build Alternative would not alter the existing roadway improvements on this segment of SR-74. All planned and approved maintenance work is included in the No Build Alternative. Currently, areas adjacent to the highway in the western portion of the project limits (Calle Entradero to Avenida Siega) are covered mostly by impervious surfaces such as asphalt and concrete, with some natural drainage features and little natural vegetation. As traffic increases, the length of time vehicles are stationary or moving slowly grows, this will lead to greater amounts of fluids from vehicles on the roadway. Therefore, this would lead to a slight increase in the amount of pollution in storm water runoff and a minor reduction in water quality. Slopes would not be cut or altered; therefore, an increase in long-term erosion and siltation would not occur. The rate of erosion would remain consistent with current conditions. The No Build Alternative would not implement any type of BMPs, and the existing levels of pollutants would continue to enter the watershed through off-site runoff. The No Build Alternative would have a less than significant impact to water quality.

Build Alternative 1

Surface Water

Build Alternative 1 would not substantially alter the existing pattern of natural surface drainage in the project area. In addition, it would not contribute to the exceedance of any adopted water quality standard or conflict with the objectives, plans, goals, policies, or implementation of the *San Diego Regional Water Quality Control Board's Basin Water Quality Control Plan* (1998).

The overall increase in road surface would be approximately 2.3 ac. Currently, areas adjacent to SR-74 within the western portion of the project limits (Calle Entradero to Avenida Siega) are covered primarily by impervious surfaces such as asphalt and concrete, with some natural drainage features and little natural vegetation. Build Alternative 1 would increase the percentage of impervious area in the project limits by 42 percent. The average runoff coefficient for the project limits would increase from 0.87 cubic feet per second (cfs) preconstruction to 0.88 cfs postconstruction, an increase of 1.1 percent.

Traffic projections conducted by the Department indicate that motor vehicle volume on SR-74 is expected to increase substantially in the future. This would occur with or without the proposed project. Consequently, the amount of motor vehicle-related pollutants discharged into the watershed and drainage channels from the highway is expected to increase with or without implementation of the proposed project. The increase in the amount of motor vehicle-related pollutants associated with Build Alternative 1 is expected to have a less than significant impact on surface water quality with the minimization measures incorporated into the project plans. The amount of pollutants created from traffic congestion during peak periods may decrease due to the relief in current traffic congestion that the proposed project is expected to provide.

Postconstruction erosion can possibly occur from cut slopes. Loose sediment from these slopes may be carried to drainages and streams during a rain event or strong winds. Only the end of the slope (hillside) will be removed close to the highway on the north side. The south side of SR-74 would not be affected. Therefore, the amount of erosion and sediment from the slopes would be minimal. Vegetating the slopes and implementation of BMPs would greatly reduce the amount of erosion and siltation as identified in the Landscape Plan. Therefore, long-term permanent erosion impacts associated with Build Alternative 1 would be less than significant.

Groundwater

The increased areas of impervious surface associated with the proposed SR-74 improvements would divert runoff from pervious areas of natural drainages into constructed drainages. Less runoff would be allowed to percolate into the local portion of the groundwater basin. Although this amount of runoff may be available for recharge into the groundwater basin via streambed percolation during storm events, it is unlikely that this would occur due to the increased rate of streamflow. In addition, the recharge rate of streambed percolation, in comparison to the rate of streamflow, would ensure that only a minimal amount of runoff reaches the groundwater basin. As the increased area of impervious surface is extremely small in comparison to the local watershed, the impact on local groundwater resources and quality from Build Alternative 1 is considered less than significant.

Build Alternative 2

As described in Chapter 1, Build Alternative 2 has the same improvements as in Build Alternative 1, with the addition of replacing the north sidewalk at the edge of the new curb. However, the project impact area is the same as Build Alternative 1 and will not create any additional permanent water quality impacts beyond those already identified in the analysis of Build Alternative 1.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Build Alternatives 1 and 2

Construction Period (Short-Term)

The following measures would be implemented during construction of Build Alternatives 1 or 2 to avoid or minimize temporary water quality impacts:

The Contractor will conform to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the California Department of Transportation (Department), Order No. 99-06-DWQ, NPDES No. CAS000003, in addition to the Best Management Practices (BMPs) specified in the Department's *Storm Water Management Plan* (SWMP). When applicable, the Contractor shall also conform to the requirements of the NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), Order No. 99-08-DWQ, NPDES No. CAS000002, and any subsequent General Permit in effect at the time of project construction.

A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Contractor and reviewed by the California Department of Transportation (Department) for approval prior to the commencement of any soil-disturbing activities. The SWPPP shall address all State and federal storm water control requirements and regulations. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to impact water quality. The SWPPP shall include Best Management Practices (BMPs) to control pollutants, sediment from erosion, storm water runoff, and other construction-related impacts. In addition, the SWPPP shall include the provisions of SWRCB Resolution No. 2001-046, which requires implementation of specific Sampling Analysis Procedures (SAP) to ensure that the implemented BMPs are effective in preventing exceedance of any water quality standards.

All work shall conform to the Construction Site Best Management Practices (BMPs) (Category II) requirements specified in the latest edition of the California Department of Transportation (Department) *Storm Water Management Plan* (SWMP) to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstorm water BMPs. For a complete list, refer to Section 2 of the Department's SWMP (May 2003) and Appendix C of the California Department of Transportation (Department) *Storm Water Quality Handbook: Project Planning and Design Guide* (May 2007).

If groundwater dewatering is required during construction, the Contractor shall comply with the *General Waste Discharge Requirements for Groundwater Extraction Waste Discharges from Construction, Remediation, and Permanent Groundwater Extraction Projects to Surface Waters within the San Diego Region except for San Diego Bay* (Order No. 2001-96, NPDES No. CAG919002) or any subsequent permit/order at time of construction.

Postconstruction Period (Long-term)

The Department's *Storm Water Management Plan* (SWMP) describes best management practices (BMPs) and practices to reduce the discharge of pollutants associated with the storm water drainage systems of state highways, facilities, and activities. The District 12 Storm Water Advisory Team will evaluate the project plans for the SR-74 widening before considering any BMP requirements. The completed project plans would incorporate all necessary Maintenance BMPs (Category IA),

Design Pollution BMPs (Category IB), and Treatment BMPs (Category III) to meet the Maximum Extent Practical (MEP) requirements.

- **Maintenance BMPs.** This category includes routine maintenance work such as litter pickup, toxics control, street sweeping, drainage, and channel cleaning.
- **Design Pollution Prevention BMPs.** This category includes all permanent soil stabilization systems such as preservation of existing vegetation, concentrated flow conveyance systems (e.g., drainage ditches, dikes, berms, swales), and slope/surface protection systems that utilize either vegetated or hard surfaces. Final determination regarding the selection of Design Pollution Prevention BMPs would occur during the Plan's Specifications & Estimates (PS&E) Process.
- **Treatment BMPs.** This category includes all permanent treatment devices and facilities, such as biofiltration strips/swales, infiltration basins, detention devices, dry weather flow diversion, media filters, and Gross Solids Removal Devices (GSRDs). These treatment facilities and devices are explained in more detail below. Final determination regarding the selection of Treatment BMPs would occur during the PS&E process.
- **Biofiltration Strips/Swales.** These are vegetated areas that remove pollutants from storm water runoff as it flows through the vegetation.
- **Infiltration Basin.** This is a depression used to detain storm water for short periods until it percolates to the groundwater table. It functions as a BMP through filtration of runoff and absorption of pollutants using site vegetation and soils.
- **Detention Devices.** Storm water runoff is conveyed from freeways to these basins through the storm drain system. These basins are lined with either vegetated soil or concrete. Storm water collects in these basins and the outlet allows water to drain slowly while sediment and other particulate forms of pollutants settle out.
- **Dry Weather Flow Diversion.** This may consist of a berm or other means to divert low flows to the sanitary sewer system and bypass high storm flows to the storm drain system.
- **Media Filters.** Media filters remove fine sediment and particulate pollutants through two concrete-lined vaults. This is done through an initial sedimentation vault and a second filtering vault.
- **Gross Solids Removal Devices (GSRDs).** GSRDs are structural devices designed to remove trash, vegetative material, and other particles of relatively large, gross size from storm water runoff.

Department-approved treatment BMPs will treat highway runoff to the Maximum Extent Practicable (MEP) before discharging to the receiving water. Preliminary project design includes biofiltration swales which targets roadway pollutants.

A complete list of all applicable BMPs is provided in the latest version of the Department's Storm Water Management Plan (May 2003) and the Department's Storm Water Quality Handbook: Project Planning and Design Guide (May 2007).

2.2.2.5 Level of Significance

The No Build Alternative would have a less than significant impact to water quality.

Potential temporary, permanent direct or indirect water quality and storm water runoff impacts as a result of Build Alternatives 1 and 2 are considered less than significant.